

Attorney Docket No. 030227

IN THE CLAIMS

Claims 1, 11, 15, and 21-23 are being cancelled. Claims 2, 5-10, 12, and 16-20 are being amended. Claims 24-43 are being added. A complete listing of the claims is shown below.

1. (Cancelled)
2. (Currently Amended) The method of Claim [[8]] [[+]], wherein determining the signal to noise ratio comprises:
 - determining a received power in a sub-carrier frequency band;
 - determining a noise estimate in the sub-carrier frequency band during at least one time period in which a sub-carrier corresponding to the sub-carrier frequency band is unassigned; and
 - determining a ratio of the received power in the sub-carrier frequency band to the noise estimate.
3. (Original) The method of Claim 2, wherein the noise estimate is determined during at least one time period in which the sub-carrier is locally unassigned.
4. (Original) The method of Claim 2, wherein the noise estimate is determined during at least one time period in which the sub-carrier is system-wide unassigned.
5. (Currently Amended) The method of Claim [[8]] [[+]], wherein the signal to noise ratio comprises a signal to noise floor ratio.
6. (Currently Amended) The method of Claim [[8]] [[+]], wherein the signal to noise ratio comprises a signal to interference plus noise ratio.
7. (Currently Amended) The method of Claim [[8]] [[+]], wherein the signal to noise ratio comprises an average signal to noise ratio over all currently allocated sub-carrier frequency bands.
8. (Currently Amended) A method of scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the method comprising: The method of Claim 1, further comprising:

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determining a signal to noise ratio for allocated sub-carriers; and
determining a total received power at a receiver;
determining a number of currently allocated sub-carriers; and
adjusting a number of allocated sub-carriers based, at least in part, on the signal to noise
ratio, wherein adjusting the number of allocated sub-carriers is additionally based, at least in part,
on the total received power and the number of currently allocated sub-carriers.

9. (Currently Amended) A method of scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the method comprising: The method of Claim 1, further comprising:

determining a total received power;
determining whether the total received power is less than or equal to a minimum total received power;
determining a number of currently allocated sub-carriers;
determining whether the number of currently allocated sub-carriers is less than a maximum number of sub-carriers in a link;
determining whether [[a]] [[the]] signal to noise ratio for the currently allocated sub-carriers is greater than a predetermined maximum signal to noise ratio; and
incrementing the number of currently allocated sub-carriers if the total received power is less than the minimum total received power, the number of currently allocated sub-carriers is less than the maximum number of sub-carriers in the link, and the signal to noise ratio is greater than the predetermined maximum signal to noise ratio.

10. (Currently Amended) A method of scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the method comprising: The method of Claim 1, further comprising:

determining a total received power;
determining whether the total received power is greater than or equal to a maximum total received power;
determining a number of currently allocated sub-carriers;
determining whether the number of currently allocated sub-carriers is greater than one;

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determining whether [[a]] [[the]] signal to noise ratio for the currently allocated sub-carriers is less than a predetermined minimum signal to noise ratio; and

decrementing the number of currently allocated sub-carriers if the total received power is greater than the maximum total received power, the number of currently allocated sub-carriers is greater than one, and the signal to noise ratio is less than the predetermined minimum signal to noise ratio.

11. (Cancelled)

12. (Currently Amended) A method of scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the method comprising: The method of Claim 11, further comprising:

determining a signal to noise level for allocated sub-carriers in a received OFDM signal;
determining if the signal to noise ratio is within a predetermined range;

determining a total received power at a receiver;

determining a number of currently allocated sub-carriers; and

scheduling a number of sub-carriers for a communication link from the terminal to the base station based, at least in part, on whether the signal to noise is within the predetermined range, wherein scheduling the number of sub-carriers is additionally based, at least in part, on the total received power and the number of currently allocated sub-carriers.

13. (Original) The method of Claim 12, wherein scheduling the number of sub-carriers comprises incrementing the number of currently allocated sub-carriers if the total received power is less than a minimum total received power, the number of currently allocated sub-carriers is less than a maximum number of sub-carriers, and the signal to noise ratio is greater than a predetermined maximum signal to noise ratio.

14. (Original) The method of Claim 12, wherein scheduling the number of sub-carriers comprises decrementing the number of currently allocated sub-carriers if the total received power is greater than a maximum total received power, the number of currently allocated sub-carriers is

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greater than one, and the signal to noise ratio is less than a predetermined minimum signal to noise ratio.

15. (Cancelled)

16. (Currently Amended) An apparatus for scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the apparatus comprising: The apparatus of Claim 15, wherein the signal to noise ratio determination module is further configured

a noise estimator configured to estimate a noise level in a sub-carrier frequency band;
a signal to noise ratio determination module coupled to the noise estimator and configured to determine a signal to noise ratio in the sub-carrier frequency band and a total received power at a receiver; and

a sub-carrier scheduler coupled to the signal to noise ratio determination module, the sub-carrier scheduler configured to schedule a number of sub-carriers based, at least in part, on whether the signal to noise is within a predetermined range and to determine a total received power, and wherein the sub-carrier scheduler is further configured to schedule the number of sub-carriers based, at least in part, on the total received power at the receiver.

17. (Currently Amended) The apparatus of Claim [[16]][[15]], wherein the signal to noise determination module is configured to determine a signal to noise floor ratio.

18. (Currently Amended) The apparatus of Claim [[16]][[15]], wherein the signal to noise determination module is configured to determine a signal to noise plus interference ratio.

19. (Currently Amended) An apparatus for scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the apparatus comprising: The apparatus of Claim 15, wherein the signal to noise ratio determination module is further configured

a noise estimator configured to estimate a noise level in a sub-carrier frequency band;
a signal to noise ratio determination module coupled to the noise estimator and configured to determine a signal to noise ratio in the sub-carrier frequency band and a total received power at a receiver; and

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~~a sub-carrier scheduler coupled to the signal to noise ratio determination module, wherein the sub-carrier scheduler to determine a total received power, and wherein the sub-carrier scheduler increments a number of sub-carriers if a total received power is less than a minimum total received power, a number of currently allocated sub-carriers is less than a maximum number of sub-carriers, and the signal to noise ratio is greater than a predetermined maximum signal to noise ratio.~~

20. (Currently Amended) An apparatus for scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the apparatus comprising: The apparatus of Claim 15, wherein the signal to noise ratio determination module is further configured

a noise estimator configured to estimate a noise level in a sub-carrier frequency band;
a signal to noise ratio determination module coupled to the noise estimator and configured to determine a signal to noise ratio in the sub-carrier frequency band and a total received power at a receiver; and

a sub-carrier scheduler coupled to the signal to noise ratio determination module, wherein the sub-carrier scheduler to determine a total received power, and wherein the sub-carrier scheduler decrements a number of allocated sub-carriers if a total received power is greater than a maximum total received power, a number of currently allocated sub-carriers is greater than one, and the signal to noise ratio is less than a predetermined minimum signal to noise ratio.

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (New) The method of Claim 9, further comprising decrementing the number of currently allocated sub-carriers if the total received power is greater than a maximum total received power, the number of currently allocated sub-carriers is greater than one, and the signal to noise ratio is less than a predetermined minimum signal to noise ratio..

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25. (New) The method of Claim 9, wherein the signal to noise ratio comprises a signal to noise floor ratio.

26. (New) The method of Claim 9, wherein the signal to noise ratio comprises a signal to interference plus noise ratio.

27. (New) The method of Claim 9, wherein the signal to noise ratio comprises an average signal to noise ratio over all currently allocated sub-carrier frequency bands.

28. (New) The method of Claim 10, further comprising incrementing the number of currently allocated sub-carriers if the total received power is greater than a minimum total received power, the number of currently allocated sub-carriers is less than a maximum number of sub-carriers in the link, and the signal to noise ratio is greater than a predetermined maximum signal to noise ratio.

29. (New) The method of Claim 10, wherein the signal to noise ratio comprises a signal to noise floor ratio.

30. (New) The method of Claim 10, wherein the signal to noise ratio comprises a signal to interference plus noise ratio.

31. (New) The method of Claim 10, wherein the signal to noise ratio comprises an average signal to noise ratio over all currently allocated sub-carrier frequency bands.

32. (New) The apparatus of Claim 19, wherein the signal to noise determination module is configured to determine a signal to noise floor ratio.

33. (New) The apparatus of Claim 19, wherein the signal to noise determination module is configured to determine a signal to noise plus interference ratio.

34. (New) The apparatus of Claim 20, wherein the signal to noise determination module is configured to determine a signal to noise floor ratio.

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35. (New) The apparatus of Claim 20, wherein the signal to noise determination module is configured to determine a signal to noise plus interference ratio.

36. (New) An apparatus for scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the apparatus comprising:

a detector configured to determine a total received power; and

a processor coupled with the detector and configured to determine a signal to noise ratio in a sub-carrier frequency band and to increment a number of sub-carriers if a total received power is less than a minimum total received power, a number of currently allocated sub-carriers is less than a maximum number of sub-carriers, and the signal to noise ratio is greater than a predetermined maximum signal to noise ratio.

37. (New) The apparatus of Claim 36, wherein the signal to noise determination module is configured to determine a signal to noise floor ratio.

38. (New) The apparatus of Claim 36, wherein the signal to noise determination module is configured to determine a signal to noise plus interference ratio.

39. (New) The apparatus of claim 36, wherein the processor is further configured to decrement a number of allocated sub-carriers if the total received power is greater than a maximum total received power, the number of currently allocated sub-carriers is greater than one, and the signal to noise ratio is less than a predetermined minimum signal to noise ratio.

40. (New) An apparatus for scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the apparatus comprising:

a detector configured to determine a total received power; and

a processor coupled with the detector and configured to determine a signal to noise ratio in a sub-carrier frequency band and to decrement a number of allocated sub-carriers if a total received power is greater than a maximum total received power, a number of currently allocated sub-carriers is greater than one, and the signal to noise ratio is less than a predetermined minimum signal to noise ratio.

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41. (New) The apparatus of Claim 40, wherein the signal to noise determination module is configured to determine a signal to noise floor ratio.
42. (New) The apparatus of Claim 40, wherein the signal to noise determination module is configured to determine a signal to noise plus interference ratio.
43. (New) The apparatus of claim 40, wherein the processor is further configured to increment a number of sub-carriers if the total received power is less than a minimum total received power, the number of currently allocated sub-carriers is less than a maximum number of sub-carriers, and the signal to noise ratio is greater than a predetermined maximum signal to noise ratio.

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